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Polyamide 66 filament yarns for industry

锦纶 66 工业用长丝

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Table of Contents

Foreword	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Product identification	6
5 Technical requirements	6
6 Test methods	7
7 Inspection rules	12
8 Marking, packaging, transportation and storage	14
Annex A (normative) Appearance requirements, inspection and assessment	16
Annex B (normative) Test methods for standard mass	19

Polyamide 66 filament yarns for industry

1 Scope

This Standard specifies the terms and definitions, product identification, technical requirements, test methods, inspection rules and marking, packaging, transportation, storage and other requirements for polyamide 66 filament yarns for industry.

This Standard is applicable to polyamide 66 filament yarns for industry with a linear density range of 500 dtex~3000 dtex. Other polyamide 66 filament yarns for industry can be used for reference.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 2828.1-2012, *Sampling procedures for inspection by attributea -- Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

GB/T 3291.1, *Textiles -- Terms of textile material properties and test--Part 1: Fibre and yarn*

GB/T 3291.3, *Textiles -- Terms of textile material properties and test -- Part 3: General*

GB/T 4146 (all parts), *Textiles -- Man-made fibres*

GB/T 6502, *Sampling method for synthetic filament yarns*

GB/T 6503, *Testing method for moisture regain of man-made fibres*

GB/T 6504, *Testing method for oil content of man-made fibres*

GB/T 6529, *Textiles -- Standard atmospheres for conditioning and testing*

GB/T 8170-2008, *Rules of rounding off for numerical values & expression and judgement of limiting values*

GB/T 14343, *Testing method for linear density of synthetic filament yarns*

GB/T 14344, *Man-made fibre -- Test method for tensile properties of filament yarns*

L_0 - length of the specimen before heat treatment, in millimeters (mm);

S - average dry heat shrinkage rate, %;

n_1 - number of specimens.

6.5 Strength retentivity at high temperature

6.5.1 Principle

Under specified conditions, the percentage of the breaking strength of the test specimen after being heated to high temperature to the original breaking strength.

6.5.2 Test instruments

6.5.2.1 Refer to GB/T 14344 for the strength and elongation test instruments.

6.5.2.2 Oven: equipped with a constant temperature control device.

6.5.2.3 Wire winding rack, etc.

6.5.3 Test conditions

6.5.3.1 The breaking strength test conditions are the same as those in 6.3.2.

6.5.3.2 The oven temperature is: $(180 \pm 1)^\circ\text{C}$.

6.5.3.3 The treatment time is: 4 h.

6.5.3.4 Laboratory samples: specimen preparation is the same as in 6.1.2; each sample is tested twice.

6.5.4 Test steps

6.5.4.1 Twist the humidified specimen according to 6.3.1 and measure the strength on a strength tester.

6.5.4.2 Wind the remaining specimen after strength test on the wire winding rack for about 20 turns and then cut it off. Tie a knot at the two ends of the wire and tie a colored thread at the knot.

6.5.4.3 Remove the specimen from the wire winding rack and hang it on a bracket. Place it in a 180°C oven for 4 h. After taking it out, place it in a constant temperature and humidity chamber for (24 ± 2) h.

6.5.4.4 Measure the strength of the specimen after humidity adjustment on a strength testing machine. The strength compared with the strength before heating is the strength retentivity at high temperature.

7.4.3 Damaged packages shall not be extracted.

7.5 Comprehensive evaluation

7.5.1 Appearance inspection items shall be evaluated barrel by barrel according to the requirements of the supplier and the purchaser or according to the provisions of Table A.1.

7.5.2 The test values or calculated values of the performance items shall be compared with the index limit values in Table 1 according to the rounded value comparison method in GB/T 8170-2008. The grade of the lowest item in the performance items in the inspection batch shall be determined as the grade of the batch of products.

7.5.3 If the user has special requirements for physical properties, the classification regulations shall be implemented according to the contract standards.

7.6 Reinspection rules

7.6.1 General

Within 3 months after a batch of products arrives at the consignee, a re-inspection may be requested as acceptance or if there is any objection to the quality. If more than one-third of the batch of products has been used, re-inspection shall not be requested. If the quality of the batch of products affects the quality of the subsequent processed products and causes serious losses, the supplier and the purchaser shall analyze the reasons, clarify the responsibilities, and negotiate a solution.

7.6.2 Inspection items

Same as 7.2.

7.6.3 Batching rules

Batching shall be based on production batches.

7.6.4 Sampling regulations

7.6.4.1 Appearance and quality differences are subject to sampling inspection. The sample size (code) is determined according to the general inspection level II in Table 1 of GB/T 2828-2012 based on the batch.

7.6.4.2 The laboratory samples of the performance inspection items are graded according to the provisions of 7.4.2.

7.6.5 Comprehensive evaluation

7.6.5.1 Appearance and quality differences

7.6.5.1.1 For appearance, the sample size is as per 7.6.4.1. Then, according to the

qualified quality level AQL value of 4.0 in Table 2 of GB/T 2828.1-2012 for "single sampling plan for normal inspection", determine the qualified acceptance number A_c and the unqualified rejection number R_e .

7.6.5.1.2 Appearance shall be evaluated in accordance with the provisions of 5.5. When the number of unqualified packages is $\leq A_c$, the original grade shall be maintained. When the number of unqualified packages is $\geq R_e$, the original grade shall be reduced by one grade.

7.6.5.1.3 Quality differences shall be in accordance with the requirements of 5.6. If they meet the requirements, they shall be allowed to leave the factory; otherwise, they shall be handled through negotiation between the supplier and the purchaser.

7.6.5.1.4 The performance test items shall be graded in accordance with the provisions of 5.2.

7.6.5.1.5 The grade of the production batch shall be comprehensively evaluated according to the grade of the lowest item of 7.6.5.1.2 and 7.6.5.1.4. If it meets the requirements, it shall be judged as the original grade. If it does not meet the requirements, it shall be judged as not meeting the original grade.

8 Marking, packaging, transportation and storage

8.1 Marking

8.1.1 Package label: Each package has a package label inside the bobbin, which indicates the production time of the package, etc.

8.1.2 Packaging label: Each packaging unit is affixed with a packaging label. The label shall indicate the manufacturer's name, product name, weight, number of rolls in the package, packaging date, grade, detailed address, etc.

8.1.3 The marks shall indicate requirements such as moisture-proof and handle with care.

8.1.4 The mark of the general distributor, such as product name, trademark, identification mark, detailed address, etc.

8.1.5 Special labeling requirements proposed by customers shall be implemented in accordance with the contract standards.

8.2 Packaging

8.2.1 The products shall be packed in pallets or cartons. The packaging shall ensure that the product quality is not damaged and is suitable for storage and transportation.

8.2.2 Each package shall have a protective layer. The supported rolls in the packaging

no other scattered light and reflected light in the surrounding environment. The visual inspection distance is 0.30 m~0.40 m (0.20 m~0.25 m when inspecting the hair of the silk tube). The observation angle is 40°~60° (parallel to the eyes when inspecting the hair of the silk tube).

A.3.2 Equipment

A.3.2.1 Grading table (car).

A.3.2.2 Scale: Scales, electronic scales, etc., the calibrated graduation value is less than or equal to 0.1% of the package mass, and the maximum weighing capacity is 20% ~ 80% of that can cover the package mass.

A.4 Inspection steps

A.4.1 Rotate the cylinder on the grading device for one circle. Observe the two end faces and one cylindrical surface of the cylinder.

A.4.2 Each testing package shall be inspected according to the items required by Table A.1 in A.2.2.

A.4.3 Check for fuzzy yarns by checking whether the yarns are fuzzy or the broken ends of single yarns protrude from the surface of the multi-filament yarn and can be seen when facing the light.

A.4.4 Check for contamination based on visually visible oil threads, rust threads, and stains that are difficult to clean with water.

A.4.5 The wire tripping inspection is calculated by the length of the wire strips at both ends of the package that deviate from the normal winding trajectory.

A.4.6 Weigh the mass of the cylinder.

A.4.7 Record the result.

A.5 Evaluation rules

A.5.1 Bobbin weight

Excluding the bobbin weight, the package weight is assessed according to Table A.1.

A.5.2 Hair

Inspect the entire surface of the package and evaluate the cumulative number of hairs on the surface of each package according to Table A.1.

A.5.3 Oily threads

Oily threads shall be evaluated according to Table A.1.

Annex B

(normative)

Test methods for standard mass

B.1 Scope of application

This standard applies to the standard mass of polyamide 66 filament yarns for industry.

B.2 Laboratory sampling method

Take 5 rolls for each specification.

B.3 Specimen preparation

B.3.1 Gloves made of impermeable materials must be worn during all operations.

B.3.2 Divide the end surface of a full roll into 10 parts from the outside to the inside according to their mass ratio (see Table B.1 for specific ratios). Use a sharp blade to quickly take out about 20 g of sample from each equal part. Immediately put them into a weighing bottle with a known mass and weigh them (accurate to 0.01 g). Subtract the mass of the known weighing bottle and record it in the column "Pre-baking mass of different sampling parts" in Table B.1.

B.3.3 Repeat the above steps for each roll package.

B.3.4 Place the weighing bottle containing the specimens in a 105°C oven. Remove the lids and place them next to the weighing bottle. Dry the specimens for 1 h until constant weight.

B.3.5 Quickly cover the corresponding weighing bottles with the lids in the oven. Take out the weighing bottles and put them into the desiccator. Allow to cool naturally for 30 min. Take them out of the desiccator again. Immediately weigh the mass of the weighing bottles filled with the specimen (accurate to 0.01 g).

B.3.6 Subtract the known mass of the weighing bottle. Record it in the "Drying mass of different sampling locations" column in Table B.1.

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